FORMULATING AN INSTALLATION GUIDELINE FOR PHOTO VOL TIC DC SOLAR HOME SYSTEMS IN SRI LANKA

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by
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Abstract

Although grid electrification drastically increased during the past two decades up to about almost 75% of the total households in Sri Lanka, it is noted that attempting to electrify the rest of the approximately 25% of the households is very expensive. This is due to the fact that these households are situated in very remote areas which do not permit the normal low voltage (230V Phase to Neutral / 415V Phase to Phase) transmission since the losses would make it unusable to the end user point.

Thus, in order to avoid this losses medium voltage line should be drawn at a very expensive cost which is not justified by the measly amount of end users. The cost benefit analysis would not be feasible. Thus, the rest of these 25% of un-electrified households stands the risk of not having accessibility to grid power even in another 20 to 30 years. Therefore, for such rural house holds the solution for the moment is alternative energy sources. Up to about decade or so back the solution that they had was kerosene fuel to light up their lamps, thereafter they obtained the accessibility to solar photovoltaic (PV) electricity through private sector vendors and government intervention. This solution was widely accepted by this community since the end result was the next best thing to grid power. Further it was safe in usage than kerosene fuel and even grid power. The government and world bank also subsidized the purchase of such systems from vendors. However, the supply of solar PV home systems (SHS) became very competitive, amongst the vendors who supplied them. As a result quality of these systems as well as their installation was compromised by the vendors. As result the poor rural folks who purchased these systems went through severe hardships due to malfunctioning systems. Considering that the investment for these systems would be the largest or the second largest investment in their lives it was unacceptable for them,

Therefore, author of this dissertation had set out to develop a solar PV installation guideline and has managed to develop same in order to be utilized and to be educated

by , the end users or their financing institutions. So that vendors has to deliver proper system with proper after sales procedure in order to be paid for their product or service. Thereby develop some ethical standard of professionalism to this area of engineering! Electrical installations.